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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,106	05/05/2005	Kunihiro Ichimura	OPC-C511	7016

7590 03/08/2007

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EXAMINER	
JOHNSON, CONNIE P	
ART UNIT	**PAPER NUMBER**
1752	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/520,106	ICHIMURA ET AL.	
	Examiner	Art Unit	
	Connie P. Johnson	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/1/07, 4/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 27 provides for the use of the resin film of claim 26, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim 27 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 15-19, 24, 26 and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Ohta et al., U.S. Patent No. 5,952,150.

Ohta teaches a radiation-sensitive resin composition comprising a photoacid generator (acid former) (col. 3, lines 52-57). The radiation-sensitive resin composition also comprises surfactants that are water-soluble polymers, such as the following in column 34, lines 47-62:

> nonionic surfactants are polyoxyethylene higher-alkyl ethers, polyoxyethylene higher-alkyl phenyl ethers, polyoxyethylene glycol higher-fatty acid diesters, and products commercially available under the trademarks, such as KP™ (manufactured by Sin-Etsu Chemical Co., Ltd.), Polyflows™ (manufacturedby Kyoei Oil and Fat Chemical Co., Ltd.), Eftops™ (manufactured by Tokem Products), Megafacks™ (manufactured by Dainippon Ink and Chemicals Co., Ltd.), Florades™ (manufactured by Sumitomo 3M Co., Ltd.), Asahi Guard™ and Surflon™ (manufactured by Asahi Glass Co., Ltd.).

The composition also comprises a sensitizer in an amount of 50 parts by weight or less based on 100 parts by wt of the resin composition (col. 35, lines 1-12). The crosslinking

agent taught by Ohta, meets the limitation of the acid-reactive insolubilizing agent. The crosslinking agent comprises substituents with formyl groups. Further, the substituents comprise epoxy compounds of bisphenol S, novolak resin-type epoxy compounds, resol-resin type epoxy compounds (col. 31, lines 27-67). The acid generator (acid former) taught by Ohta may be present in the composition in an amount of .001-70 parts by weight (col. 33, line 19). The crosslinker (acid-reactive insolubilizing agent) is present in an amount of 5-95 parts by weight (col. 33, line 20). Ohta also teaches a method for preparing a resist pattern from the radiation-sensitive composition. The method comprises preparing the radiation-sensitive resin composition and applying the composition to a substrate. The coating is heated to form a resist coating. The process results in a resist film (radiation-sensitive resin film) as in instant claim 26 (col. 36, lines 9-18). "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (see MPEP 2113). The resist film formed by the patterning process of Ohta is suitable for a screen printing process because the resist film composition meets the limitations of the radiation-sensitive resin composition as claimed.

6. Claim 15 is rejected under 35 U.S.C. 102(e) as being anticipated by Kawamura et al., U.S. Patent No. 6,465,146 B1.

Kawamura teaches a radiation-sensitive composition comprising pigment particles (sensitizer) with a particle diameter of 0.01 to 10 μm (col. 8, lines 53-55). The composition also comprises a water-soluble binder (col. 17, line 50). Kawamura also teaches a water-insoluble solid that meets the limitation of the acid-reactive insolubilizing agent in instant claim 15 (col. 34, line 46). The composition also comprises an acid generator (col. 36, line 48).

Claim Rejections - 35 USC § 103

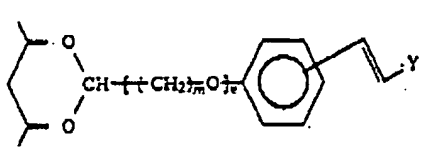
7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 15, 20, 21, 22, 23, 25-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ichimura et al., U.S. Patent No. 4,777,114 in view of Narahara et al., U.S. Patent No. 6,190,834 B1.

Ichimura teaches a photosensitive resin emulsion comprising a film-forming resin and a protective colloid (abstract). The photosensitive resin emulsion comprises a photosensitive unit and a saponified polyvinyl acetate derivative with a hydrophobic unit bonded to the backbone (col. 2, lines 57-67). The photosensitive unit comprises a

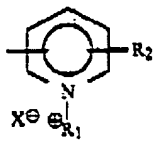
polyvinyl alcohol and styrylpyridinium group as in instant claim 22 (see column 3, figure 1).



(I)

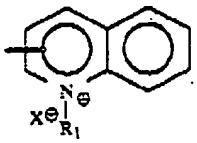
wherein

stands for a vinyl alcohol unit residue of the saponified polyvinyl acetate in the backbone, Y stands for a group represented by the following formula (II) or (III):



(II)

or



(III)

The film-forming polymer is a water-soluble polymer that may comprise such polymers as acrylic/acrylic acid copolymer and styrene polymer (col. 7, lines 31-45). Ichimura also teaches a method of forming a pattern. The method comprises preparing a resin emulsion composition and coating the film on a screen printing plate. The composition is heated to 60^{0}C and stirred overnight prior to coating on the screen printing plate. The

composition was dried and irradiated with light. After exposure, the composition was developed with water (see example 1, column 8). Ichimura does teach a photosensitive composition. However, the Ichimura does not teach an acid former and sensitizer in the resin emulsion composition.

However, Narahara teaches a photosensitive resin composition comprising an epoxy resin (acid-reactive insolubilizing agent) and a second resin with an ethylenically unsaturated bond in the side chain (abstract). The composition may be used in a screen printing process (col. 14, lines 55-59). The composition may also comprise a sensitizer and a photo-acid generating agent (col. 9, lines 50-52). Narahara teaches the photo-acid generator and sensitizer in the form of particles in column 12, lines 35-48). It would have been obvious to one of ordinary skill in the art to use the photo-acid generator and sensitizer of Narahara in the composition of Ichimura to increase the tack free property of the photosensitive film and improve surface roughening efficiency of the plated film of the resin composition material after curing (Narahara, col. 9, lines 62-65).

9. Claims 15, 25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamura et al., U.S. Patent No. 6,465,146 B1.

Kawamura teaches a radiation-sensitive composition as relied upon above. Kawamura teaches the composition comprises pigment particles and an acid generator. The pigment particles comprise a particle diameter of 0.01 to 10 μm (col. 8, lines 53-55). The pigment particles (sensitizer) and acid generator are dispersed in water. Kawamura does not teach that the acid generator is in the form of particles nor that the particle size

is less than 1.5μm. However, it would have been obvious to one of ordinary skill in the art to add the acid generator in the form of particles to form a solubilizing particle mixture in the composition. Further, it would have been obvious to one of ordinary skill in the art that the particle size of the acid generator would be less than 1.5μm because the particle size is conventional.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Connie P. Johnson whose telephone number is 571-272-7758. The examiner can normally be reached on 7:30am-4:00pm Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Connie P. Johnson
Examiner
Art Unit 1752

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700